

Computers and Internet  
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Is there really anyone out there reading this that doesn't have a computer? I would imagine that there are a few people out there, and I hesitate to guess at why they don't have one of the handiest tools we've had available since pliers. It probably isn't the cost, since even an older Pentium machine can be had for free. Maybe they just don't see the value in a general-purpose do-it-all machine?

The things you can do with a computer today are literally without limit. This month, I'd like to bring up a few ideas for using a computer. Not all of these ideas are new, but by looking at a variety of applications, perhaps that will stimulate you into thinking of other things. (And yes, you *can* use one to anchor a boat!)

Years ago, after I had my first computer but before I had spent the money on a PC Board drafting program, I had a need to design a fairly complex Printed Circuit Board that could be reproduced many times. I ended up using PC Paintbrush, a program that shipped with Microsoft Windows 3.1. It took what seemed like forever to put that design onto the screen, a pixel at a time, but at the end, I had a precision pattern for my board. If you're interested, you can see the end result in the October, 1996 edition of CQ-VHF, in my Digital Data Link column.

In the version of Paintbrush I was using, you could work on individual pixels. Looking at the Paint program I have on my Windows 98SE machine, working at that level of detail is difficult, if not impossible. Anyway, what I did was to create a bitmap that was scaled to 300 dots per inch, allowing me to work in increments of 1/300<sup>th</sup> of an inch. The resulting file was huge, but I could make lines as fine as 0.0033 inch, much finer than I could etch.

Each board had something like 130 holes to be drilled. After my tenth board, I started looking for a better way. I ended up building a Computer Numerically Controlled (CNC) PC Board drilling machine, based on an article by Dan Mauch <<http://www.seanet.com/~dmauch/>> in Nuts & Volts. I resurrected an old IBM 8088 machine (4.77 MHz!) with a failed hard drive to run the machine, booting off a 3.5 inch floppy. I still have and use it.

Getting back to PC Board patterns, I soon realized that my efforts were being limited by the capability of my printer. Remember, this was when a 24-pin dot matrix was high-resolution, and a laser printer was a few thousand dollars. What I did was to print out the pattern in best resolution mode at double or triple size, and then reduce it on the copier at the library. The result was quite good. Eventually, I found a laser printer, and lived happily ever after.

Once I got the laser printer, I started using it for labels. If you've been a reader of my columns for any length of time, you know that I like to build equipment. Equipment needs controls, and controls need labels and scales. Again using Paintbrush, and also Powerpoint and eventually Adobe Photoshop to make whatever I needed, I just printed out my labels and scales.

Recently I read about a DOS program which allows you to easily design and print a customized meter scale for just about any meter movement you'll encounter. Written by Jim Tonne, WB6BLD, meter.exe can be downloaded from Jim's web site at <http://www.qsl.net/wb6bld/>. The program is free for Ham use. See the brief article in last October's QST, in the Hints & Kinks column, for some useful ideas on printing if you don't have a PCL5-capable printer.

With labels and even entire front panels, I'd usually print onto a clear plastic overhead transparency. To ensure the toner didn't rub off, I'd print in reverse, so the printed side went against the equipment, with white paper or paint behind it for contrast. Depending on your printer, you might have to adjust the print size a few percent.

The computer and printer can be a powerful combination. How about identification cards for club members, complete with color photo? I hope your club is already producing a newsletter, like I discussed on these pages earlier this year. How about producing a training manual on something? Maybe a handy reference card for something?

Then there's the sound card. I've written about sound cards before, so you know there's a lot you can do with them besides PSK31. Almost every contester uses their computer for logging, sure, but how many also use it as a voice keyer? After all, your sound card can both record and play back any audio you can make. Windows even comes with a basic sound recording/playback/editing program that should meet most people's needs, and you can open as many instances of it as you have phrases.

DX spotting via the various clusters is also a popular use of computers. Here you have more than one possibility, getting your spots over the air using packet, or by connecting over the Internet. See the sidebar "DX Workbench" for a mini-review of a nifty software package that conveniently brings many diverse information sources together.

There have been CW training programs available for many years, but one program by Tony Lacy, G4AUD has really caught my attention. His NuMorse program offers a good selection of standard and advanced CW learning techniques. The upgrade to NuMorse Pro offers multi-user statistics tracking and many other randomization and automation features for only a few dollars more. Especially cool features include the random fading and noise (QSB/QRN) of the audio output, and the "Antique code sound option", emulating the unique (and rare) sounds of various spark transmitters and telegraph keys.

Tony also offers NuTest, which creates and administers practice tests for any US license class. If that was all, it would be enough, but NuTest also has a wonderful study guide, with comments and explanations (some quite extensive) for every correct answer. You can also easily access other learning resources, such as a copy of the Part 97 rules and on-line links to Amateur Radio topics and math formulae. VEs can even print out paper tests for an exam session, with support for several types of marking templates. See Karl Thurber, W8FX's "What's New" review in the August issue of CQ, and get more information or download free demos at <<http://www.nu-ware.com>>.

With just a little creativity, your computer can help you with many Amateur Radio tasks. As a builder, I use the printing capabilities of my computer for nearly every step, from design and prototyping through finished front panel, even the documentation. And although I write mostly about Wintel Personal Computers, all of this applies equally to all those Mac and Linux machines out there. Not owning either, I am clueless about the available software for those platforms, but I'd be surprised if it wasn't just as good, maybe better.

Once again, another year comes to a close. Recent year changes have been of the once-in-a-lifetime variety - all new digits in the year, a new millenium - and this year it just feels good to get closer to normal again. As I always do this time of year, I want to once again send you and yours all the very best wishes of the season, for happiness, health and maybe some wealth. We should all work towards keeping that warm fuzzy feeling alive throughout the whole year. Until next year, 73 de N2IRZ

#### SIDEBAR:

##### "DX Workbench"

I'm not a DX hunter, preferring long ragchews over signal reports with some rare call prefix. I just take whoever's on the air. Although I might use resources on the internet to make DXing more interesting, I'm often frustrated by the plethora of different programs I'd like to have running 'just in case' - a browser (with a good 'favorites' list), radio control software, a logging program, and a packet connection to a DX Cluster. Then, I learned about a suite of programs written by Fabrizio Sartoni, IK4VYX. These shareware programs bring many diverse information sources together, making it easy to get an accurate picture of DX conditions at that moment. It's kind of like having all the tools you need, right on the workbench.

The first step is to visit <<http://www.qsl.net/wd4ngb/telnet.htm>> to download the latest version of the software. The only difference between the free download version and the fully registered version is the elimination of a 30 minute timer - register the program, and it won't automatically close after a half hour. I like this kind of full-function demo, because you can really evaluate all of the software features before you buy it.

Downloading the program is quick at 1.2 MB. Running the downloaded file starts a typical setup routine. Follow the simple instructions and you should soon end up with a program folder on your desktop. There you'll find three programs which are essentially all the same, the difference being what kind of data connection you'll use to send and receive DX spots. DX TNC is for Packet connections to a local DX Cluster, DX Plover uses a connection to DX Summit (<http://oh2aq.kolumbus.com/dxs/>), and DX Telnet allows a connection to any of the many DX Clusters on the Internet.

The list of features is large. One of my favorites is the automatic PC Clock setting routine - two clicks and it's done! You can also search updateable databases for IOTA, Locator or Prefix data. Easily connect to many Internet resources, such as callbooks, QSL info, and even a real-time grey line display. Right-clicking on a callsign brings up a Buckmaster and a QRZ callbook lookup (<http://buck.com/call> and <http://www.qrz.com/>), respectively). It exports to most every logging program, speaks the callsign and frequency of every new spot as it appears, and can even filter spots according to very flexible criteria. You can even have the program send you DX spots as SMS messages to your cell phone! All that, and the multi-window user interface is intuitive and easy to use, to boot.

Instead of repeating the owner's manual here for you, I just urge you to download it and try it. If the 30 minute timer gets annoying, a lifetime registration code can be had from Fabrizio for around \$35 at the time I wrote this. Contact him by e-mail at [rac2610@racine.ra.it](mailto:rac2610@racine.ra.it)

